

WHEN POLLUTION GETS PERSONAL: DEVELOPING PROTOCOLS FOR BIOMONITORING RESULTS COMMUNICATION WITH INPUT FROM STUDY PARTICIPANTS

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Background: Advances in biomonitoring methods have enabled environmental health scientists to measure ever-lower concentrations of environmental contaminants in human blood, urine, breast milk, and other tissues. Yet our ability to detect chemicals in humans has rapidly outpaced our capacity to interpret what personal exposure results mean for health effects, sources or toxicity. This situation raises ethical and scientific challenges related to reporting biomonitoring results to individual study participants and their communities. California's Biomonitoring Program is required by law to provide individual chemical exposure results to those participants who want them.

Methods: We developed individual report-back materials that are scalable to a statewide biomonitoring program involving participants from diverse cultural backgrounds and literacy and numeracy levels. We recruited study participants from the Chemicals in Our Bodies Project, a biomonitoring study conducted by UC Berkeley, UCSF and Biomonitoring California, which is testing for chemicals in pregnant mothers and their newborn babies. Upon recruitment, study participants were asked to participate in usability testing of prototype report-back materials that assessed whether and how messages about chemical exposures and scientific uncertainty regarding health effects and sources are understood and interpreted.

Results: Participants valued getting their personal biomonitoring results and were able to identify their exposure levels from the text and graphs provided in the prototype materials. Participants understood the scientific uncertainty regarding the implications of exposures for health effects. Key challenges were distilling results from the large number of chemical analytes tested and communicating the meaning of reference levels.

Conclusion: Although medical ethics have favored reporting only clinically significant biomonitoring results, public policy and community concern regarding the ubiquity of chemical exposures is beginning to broaden the ethical focus toward participants' right-to-know. This shift will necessitate more research on developing effective report-back protocols that are accessible and transparent to linguistically and culturally diverse groups.